

Title (en)
Linear magnetic bearing.

Title (de)
Lineares magnetisches Lager.

Title (fr)
Palier magnétique linéaire.

Publication
EP 0053873 A1 19820616 (EN)

Application
EP 81304971 A 19811022

Priority
US 21436180 A 19801208

Abstract (en)
[origin: US4387935A] A linear magnetic bearing includes a stator member (16) stationary relative to x, y and z axes and having a longitudinal axis on the z axis as well as a member (15) longitudinally translatable relative to said axes. The translatable member (15) is controlled to have a longitudinal axis coincident with the z axis. Permanent magnets (36 and 37) on one of the members positions the translatable member (15) in a plane defined by the x-y axes relative to the stationary member (16). The position of the translatable member (15) is sensed by sensors (41 and 42) relative to the stationary member (16) in the plane defined by the x-y axes. Electro-magnets (38 and 39) on one member (23) responds to the sensor (41 and 42) to center the longitudinal axis of the translatable member (15) on the z axis. First low reluctance magnetic flux paths for the permanent magnets (36 and 37) exist through both of the members and a radial air gap (32, 33, 34 and 35) between the members. Second low reluctance magnetic flux paths exist for the electro-magnets through both of the members and a radial air gap (34 and 35) so no net force is applied to the translatable member in the direction of the z axis by either the permanent magnet means or the electro-magnets. The first and second low reluctance flux paths are arranged so that both the electro-magnets and permanent magnets share a common air gap but the electro-magnet fluxes do not pass through the high reluctance permanent magnets. One of the members includes two fixedly spaced elements (23 and 24) along the z axis. Each fixedly spaced element (23 and 24) has four radial pole faces (27, 28, 29 and 30) for the permanent magnet flux paths.

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CPC (source: EP US)
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Citation (search report)

- [Y] US 3787100 A 19740122 - HABERMANN H, et al
- [Y] FR 2052314 A5 19710409 - BODEN KARL, et al
- [Y] FR 2177343 A5 19731102 - PADANA AG [CH]
- [Y] US 3557629 A 19710126 - QUERMANN THOMAS R
- [Y] US 3508445 A 19700428 - PENNEY ALBERT W JR, et al
- [Y] US RE26799 E 19700217

Cited by
US5821656A; EP0136865A3; US8978595B2; WO2011026774A1; WO9702732A3

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